

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization International Bureau



(43) International Publication Date
22 September 2005 (22.09.2005)

PCT

(10) International Publication Number
WO 2005/087360 A1

(51) International Patent Classification³: **B01J 8/04**

(21) International Application Number: **PCT/US2005/007882**

(22) International Filing Date: 9 March 2005 (09.03.2005)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/551,452 9 March 2004 (09.03.2004) US

(71) Applicant (for all designated States except US): **INTELLIGENT ENERGY, INC.** [US/US]; 1001 Menaul Boulevard NE, Albuquerque, NM 87101 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **WOODS, Richard Root** [US/US]; 10 Valley View, Irvine, CA 92612 (US). **PORTER, Brook E.** [US/US]; 13044 West Pacific Promenade #119, Playa Vista, CA 90094 (US). **IYER, Rahul** [US/US]; 5250 Broadway, Long Beach, CA 90803 (US). **WESCHTA, Leonhard M.** [AT/US]; 4591 Orange Avenue #302, Long Beach, CA 90807 (US).

(74) Agents: **GREENBERG TRAURIG, LLP** et al.; 2450 Colorado Av., Suite 400 E, Santa Monica, CA 90404 (US).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AB, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

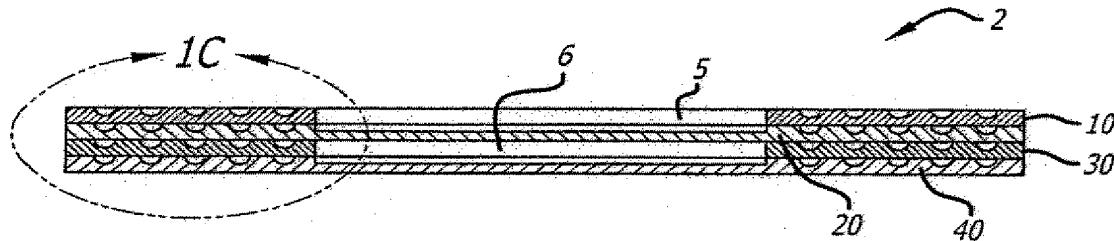
(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report
— before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: MODULAR REFORMER WITH ENHANCED HEAT RECUPERATION



(57) Abstract: A thermal reformer system (1) is provided that comprises a planar assembly including a reformer zone (5), a combustion zone (6), and various inlet and outlet manifolds with associated fluid flow passages (11, 20). The reformer system further comprises an inlet combustion fluid flow passage (31) connecting an inlet combustion fluid manifold (30) and the combustion zone (6), and an outlet combustion fluid flow passage (41) connecting the combustion zone (6) and the outlet combustion fluid manifold (40). In the thermal reformer system the heat transfer and recuperation from outlet fluid flows is efficiently transferred to inlet fluid flows, in order to minimize heat loss and insulation requirements.

WO 2005/087360 A1